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ABSTRACT

Scripts of the three presentations made during Forum 12 of the AACJC conference are presented here. The introductory remarks, made by James O. Hammons, deal with the need for accountability and cost effectiveness and the development of these concepts. Sharon Jaggard presents a comparison of three courses at Bulington County College on the basis of instructional costs, considering both cost effectiveness and instructional effectiveness. The presentation by Mary Lyons details the instructional and cost effectiveness of the Basic Studies Program at Tarrant County Junior College. (KM)

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Forum 12

IMPROVING INSTRUCTION

AND

COST EFFECTIVENESS

Conference

American Association

of

Community and Junior Colleges

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February 25, 1974

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PREFACE

The following pages contain the scripts of the presentations made during Forum 12 - "Improving Instruction and Cost Effectiveness."

In the event anyone would care to contact one of the participants, the name and address of each are:

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INTRODUCTORY REMARKS

Dr. James O. Hammons

Welcome to Forum 12: "Improving Instruction and Cost Effectiveness." I am Jim Hammons and I will be chairing the Forum. Here with me today are Mrs. Sharon Jaggard and Dr. Mary Lyons. In a few minutes I'll tell you more about Sharon and Mary, and why they were selected to be in this particular forum.

But first, I would like to set the stage for their remarks. Three years ago, when the Association met in this same hotel, the theme of the meeting was accountability. At that time, some persons thought accountability an inappropriate theme. After all, the word had only been indexed in most periodicals for less than five years. Besides, enrollments were still soaring, new colleges opening, money was still flowing; why all the concern?

As it has turned out, whoever selected the theme must have been looking into a crystal ball. With twenty cents of every tax dollar being spent on education, our scientific, consumer-oriented, production-centered society is now demanding a scientific, consumer-oriented production-conscious educational system. And they are starting to ask new questions. Whereas they once might have asked what it cost to keep a student in college for a year, now they ask what it costs to raise that student's reading level one year. The public, and their representatives in state legislatures and the congress are quite clear in what they are telling us. For one thing, there are other pressing social demands like pollution control, sewage treatment, and mass transit systems which now require an increasing portion of the tax dollar. For another, there is a limit to how much money higher education can expect from society--it used about one percent of the GNP in 1960, and is using 2.5 percent now. No other segment of society has more than doubled its take of the GNP during that short period of time.

But of even more significance than these is the fact that there seems to be little, if any, apparent relationship between dollars spent or input, and results obtained, or output. In other words, we have failed to demonstrate that "more" means "better."

One of the best illustrations of how public attitudes have changes was given in this same hotel some three years ago by the superintendent of the Dallas school system. The occasion was an ETS sponsored conference on accountability. He related the story of how, since 1960, the Dallas School Board had been working closely with its faculty association in providing funds to improve the school system, so closely in fact, that he called the relationship a "love affair." Virtually every request had been granted. Class sizes were reduced; salaries tripled; counselors had been added, etc. Then one day, the Board got around to evaluating the results of all this. To their amazement, the situation had not changed since 1960. The percent of students who graduated from the Dallas high schools and then couldn't pass an eighth grade Army qualifying examination had not changed. Nor for that matter had the drop out rate. The superintendent said his

Board reacted like the wildcat who was half way through a love affair with a skunk and suddenly realized that he had enjoyed about as much as he could stand.

So here we are today, back in the same hotel, talking about the need to improve instruction and yet be cost effective.

To many persons, the two don't go together. They say it's like wanting to buy a new car--with all the big car luxuries--like power steering, air conditioning, spaciousness, big trunk space, etc., while insisting that the car get thirty miles to a gallon of regular gas and cost no more than $3,000.

However, like it or not, we are going to have to face the facts--the days are gone when "big" meant "good;" where "more" meant "better;" where quality was measured in terms of the educational level of the faculty, the number of volumes in the library, or the ratio of teachers and counselors to students. And if this weren't enough, for the first time in the history of most of our colleges, there are signs that our enrollments are beginning to level off, or in some instances, decline. This trend, coupled with inflation, and strong resistance on the part of local, state, or national groups to providing increased support per student, can only mean rough times ahead.

The timing couldn't be worse. We are just beginning to "get it all together." Our open door philosphy is being operationalized by a choice of curriculum offerings including occupational programs and functional developmental programs. The name "community" in our titles is being earned through comprehensive and innovative programs of community services for all the citizens of our service areas, including the aged and those in prisons. But of all the areas affected by these trends, the problem is particularly critical in instruction. As one writer recently commented, "In the 1960's, instruction was improved through addition and expansion. Now we have to learn how to do it by subtraction and contraction. Needless to say, the rules are different. For example, we now have to learn how to do things better with existing dollars, or in some instances, how to do the same for less dollars. To get more money, we will have to be prepared to show what the additional dollars will buy. And, for some, there may be another new game to learn--it's called, "something old, something new." The rules are quite simple. If you want something new, something old has to go.

However, I'm sure you didn't come to this forum to be told that you have a problem. You came hoping to receive some ideas about what you can do to solve the apparent dilemma suggested by the title of the Forum.

One thing I can assure you is that you won't find the answers in the literature. When I agreed to take on this Forum, one of my first efforts was to do a thorough review of the literature. Very honestly, here's what I discovered. First, under "cost" and "cost effectiveness" I found:

1. Articles proposing formulas for determining costs.

2. Articles summarizing the results of applying formulas.

Almost all of these focused on cost--few had anything to say about effectiveness. A typical disclaimer read like this: "Holding constant, for the sake of analysis, the relative effectiveness of course 'A' and course 'B'," we will show how to determine the relative cost of "A" and "B." That's like Consumer Reports comparing a Ford Pinto and a Mercedes, but only with respect to cost.

Under "effectiveness" and "instructional improvement," I found lots of articles telling how to improve instruction, but almost none which said how much it would cost to do this, or how to compare costs and effectiveness of alternative strategies.

While I was doing this, a month went by and I began to get a bit nervous. Dick Wilson was after me to give him the names of persons to be in the Forum, and I still hadn't decided what to do. Then I had an idea. Why not invite some of the faculty members I know who have developed programs which are both effective and efficient and let them tell what they have done. And that is what I did. By a purely subjective process, I selected two persons to come here today and represent the hundreds of faculty members who have shown that it is possible to achieve a balance between cost and effectiveness.

The first presenter, Mrs. Sharon Jaggard, teaches in the Division of Business Studies at Burlington County College in Pemberton, New Jersey. She has been teaching for eight years, two and one-half years at the high school level, two and one-half years in a vocational technical institute, and three years in a community college. To give you an idea of why I chose her, this fall, her three courses enrolled 296 students. Of these students, 222 completed her courses, and more than 90 percent made a "c" or better.

The second speaker, Dr. Mary Lyons, is a team chairman in the basic studies program of the South Campus of Tarrant County Junior College, Fort Worth, Texas. She has taught thirteen years in both high school and college. For the last five years, Mary has been involved as a teacher and administrator in one of the most successful developmental programs in the country. I don't want to steal her thunder, so I'll only quote one statistic--out of every 100 students who enroll in her program, 96 successfully complete the program.

And at this time, I would like to turn the program over to them, beginning with Sharon.

A COMPARISON OF THREE COURSES

BURLINGTON COUNTY COLLEGE

My major responsibility at Burlington County College is focused on three courses: Technical Writing, Business Communications and Business Mathematics. This presentation will explain how each of these courses is organized in a different mode of instruction, will give the comparative instructional costs for conducting the courses, and discuss some of the results obtained.

Of the three courses, Technical Writing is the most conventional. It is a "monday-wednesday-friday" kind of class, meeting three hours a week and generating three credit hours per student. The three hours per week in class are spent in what are traditionally considered "normal" classroom activities: checking attendance, delivering instruction, distributing graded assignments and test papers. Basically it is a lecture-discussion course in which students complete assignments outside the classroom by activities such as library research. The inputs needed for this instructional mode are a classroom, a lecturer and a traditional textbook which serves as the main learning material. At Burlington, we also utilize "learning packets" in all our courses. These are guides given to students which contain behavioral objectives, learning strategies, and evaluation measures for each of the units to be studied in the course.

To compute the cost for this and the other two courses being discussed, the total direct instructional cost of running the course was divided by the number of students enrolled in the course to determine the cost per student. The formula used to make these computations was the formula used by Dr. Arthur Berchin in his study for the League for Innovation in Community College Courses which can be found in his book, Toward Increased Efficiency in Community College Courses, published by UCLA:

$$\frac{(B/A \times C) + D + E/F + \frac{(G/H \times I) + J}{K} + L/M}{G}$$

The formula utilizes 13 possible variables to determine direct instructional cost. Examples of some of these variables are:

"A" - Per Week Teaching Load
"B" - Hours Per Week Devoted To Course Named
"C" - Salary Applicable to Duration of Course
"D" - Amount Paid Paraprofessionals for the Course
"F" - Amortization Period of 5 Years for Preparation of Course Materials
"G" - Total Students Enrolled

All 13 variables would not necessarily be used to compute the cost of every course. For example, to compute the cost of the Technical Writing Course, only four of the 13 variables were applicable to the mode of instruction being used for that course to arrive at direct instructional costs of $1135.98. The cost per student to run the Technical Writing Course in the conventional mode is $45.44. Subsequent paragraphs will cite the comparative costs of this mode of instruction versus other modes.

The second example, Business Communications, is a course which has been partially individualized. The methodology used is "ecclectic" or "middle-of-the-road" as I call it. In this course, students are scheduled to attend one large group session and one small group session each week. Their third hour of credit is earned through independent study. Learning materials for the course consist of two reference texts, unit learning packets, and a few self-instructional package-tapes on concepts which students can best grasp independently (e.g. basic letter writing theory). Enrollment averages 60 students (there are 69 enrolled this semester) and all 60 attend the one large group session scheduled each week. Any lectures, films, or guest sepakers are scheduled for this period. In addition to a large group, students attend one small group meeting each week. Optimum size of these small groups is 30 students so that with a class of 60, two small groups would need to be scheduled *each* week. The small groups are used to follow up large group topics with discussion, games, simulations, group interaction and other communication which is most appropriately handled in a small group setting.

Applying the same formula to compute the cost of this mode of instruction, 8 of the 13 possible variables were needed to determine that the direct instructional cost per student enrolled in the course in $37.19. To make a quick comparison, if this course were taught in the conventional mode of three hours per week in optimum classes of 30 students, the cost would be $43.20 per student. "Audiotutorial" is the term Berchin uses for the courses in his study which most closely resemble the Communications course; however, the course is not truly an AT course in the Postlethwaite sense of the term.

The final course used for this comparison is the Business Mathematics Course which has been individualized into a multi-track course. Without going further into "systems" jargon or "educationalese," this means that students have an option as to the mode of study they will use in the course. Any of the methods they may choose will generate three hours credit for those who complete the course. The easiest and fastest way to explain the course is for you to pretend you are a student for the next few minutes and "walk" through the following description of what you would do.

In order to achieve the learning objectives of the course, you may attend a large group lecture which is scheduled each week, or, if you prefer to study independently, you can check out self-instructional package-tapes in the independent study area. These package-tapes contain the lecture course information in a self-instructional format. You may attend either of these, or use both the lectures and the package-tapes, or switch from one to the other as you desire and as proves best for your success in learning. In addition to this you will need to complete lab exercises with the instructional assistant who will give you individual help in the lab with questions you might have from the lecture or from some of the package-tape materials. If you find you would like further help, there is a small seminar area in the lab where you can work individually with the instructor or work with the instructional assistant and other students as you need.

To help keep yourself organized and progressing in the course, you are provided with a schedule for the semester which includes dates and topics for the lectures, programmed text units, test numbers and deadlines. As this course is designed, none of your class time will be used for testing. You may complete tests in the Test Center as you are ready for them within the scheduled time limits published in the Semester Schedule. Your tests are computer graded and print-outs are obtained daily by the student assistant or instructional assistant who will post them in the Math Lab for you. These print-outs list your cummulative test results and your average to date. If you score below "C" on any test, you may retest after counseling with the instructor.

That completes a brief explanation of the multi-track Business Mathematics Course: a large group track and audio-tutorial track, and a programmed text for these tracks may be used singly or in combination. The cost per student of this multi-track course, again applying the same formula, is $24.20. There were 211 students enrolled in the course and 11 of the 13 variables in the formula were needed to compute the total direct instructional cost of $5106. If the Business Mathematics Course was scheduled in the conventional course mode of classroom lecture-discussion three times a week, the cost for that mode with 211 students enrolled would be almost double or $43.07 per student. When looking at the comparative costs of the three courses, the Business Math multi-track mode has the lowest per student costs with the conventionally run Technical Writing Course totaling the highest cost per student. All three courses, given my salary and other non-fluctuating variables in the formula would cost $43-$45 per student if taught conventionally, as shown below:

COMPARISON OF DIRECT INSTRUCTIONAL COSTS PER STUDENT

	Actual Cost	Conventional Cost
Technical Writing	$45.44	$45.44
Business Communications (Middle Road)	37.19	43.20
Business Mathematics (Multi-Track)	24.20	43.07

Member colleges of the League for Innovation reported conventionally-run course cost per student at $9.08 to almost $340. as shown below:

Instructional Mode	Range	Mean
Large Groups	$6.11 - $75.00	$31.28
Individualized Programmed	28.76 - 120.00	63.27
Auditutorial	15.65 - 303.96	83.08

Cited from Toward Increased Efficiency in Community College Courses, Arthur Berchin, (League for Innovation in the Community College, UCLA, 1972)

However, this Forum is concerned not only with cost effectiveness, but also with instructional effectiveness. In other words, our concern is not only that of teaching more students, but teaching more students better. One of the first questions that comes to mind is that of the students' attitude towards the kind of instruction they are getting. On a rather extensive student questionnaire used last semester, the following four results were particularly encouraging. As shown, results indicated that students preferred the multi-track mode or elements of it. Particularly overwhelming was the 92% in favor of testing in the Test Center when rumors to the opposite effect had been recently circulating at the College.

STUDENT ATTITUDES REFLECTED

STUDENTS PREFER TO:

1) CHOOSE OWN MODE OF STUDY (78%)
2) TAKE TEST WHEN READY IN THE TEST CENTER (92%)
3) USE A PROGRAMMED TEXTBOOK (73%)
4) HAVE OPTIONAL ATTENDANCE AT LARGE GROUP (75%)

Another possible indicator of an effective teaching-learning environment is grade distribution. Last semester 90% or better of the students receiving grades in Business Communications met all objectives at minimum level competency signified by a grade of "C" or better. The grade distribution of 100% at "C" or better in Technical Writing, was an unusual semester as you might see also by the attrition rate compared to that of Business Communications. Many of these students were advised to drop the course because they had not yet taken their first course in their technical field--an obvious prerequisite to the Technical Writing Course.

GRADE ATTRITION AND DISTRIBUTION

BUSINESS COMMUNICATIONS: (MIDDLE ROAD)	90% - C OR BETTER
	71% - B OR BETTER
	19% - A OR BETTER
	10.8% ATTRITION RATE
TECHNICAL WRITING: (CONVENTIONAL)	100% - C OR BETTER
	73% - B OR BETTER
	27% - A OR BETTER
	36% ATTRITION RATE

The grade distribution last semester for Business Mathematics shows the majority of students receiving a grade "C" or better. These grades have improved somewhat in that out of the three students receiving a grade of "Incomplete", two have completed with a "C" or better which changes the total percentage achieving at that level to slightly above 90%. The results of these students who received an extended incomplete grade of "x" will notbe available until the end of the current semester.

GRADE DISTRIBUTION

BUSINESS MATHEMATICS (MULTI-TRACK)

A	B	C	D	F	I	X	W	TOTAL
62	37	36	4	3	3	7	59	211

89% ACHIEVED C (70%) OR BETTER

65% ACHIEVED B (80%) OR BETTER

41% ACHIEVED A (90%) OR BETTER

But I cannot look entirely at grade distribution, and when I saw that 59 of 211 had withdrawn, I was ready to withdraw, but chose instead to find out why and determine a course of action. Frankly I was initially appalled at an attrition rate of 27.9%. On looking more closely, I found that 7% could be attributed to "prerequisite" attrition and that a little more than 10% could possibly be attributed to the Fall college attrition--that is total withdrawal from school. This left approximately a 10% net attrition rate for the course which is much lower than attrition rates for first semester freshman courses. Since the college attrition rate is not completely under my control, I further analyzed what I call the "prerequisite" attrition rate. These are students that demonstrated on a diagnostic test at the beginning of the course that they did not possess enough skill in fundamental mathematics.

ATTRITION

27.9% 110 STUDENTS DEFICIENT IN 240 BASIC MATH UNITS = MEAN 2.2 UNITS PER STUDENT

This semester 94 diagnostic tests were administered and results indicated that 83% of the students were deficient in at least one basic math area and that the mean is still running a little over two units per student. If I were not teaching this course for the fourth year, I would not believe these statistics:

CURRENT

CURRENT SEMESTER: 78 STUDENTS DEFICIENT IN 162 BASIC MATH UNITS = MEAN OF 2.1 UNITS

SURVEYED 94 BUSINESS MATH STUDENTS-(DIAGNOSTIC TEST)

5-UNIT TEST

83% - NEED AT LEAST ONE PREREQUISITE MATH UNIT

162 - TOTAL UNITS TO BE COMPLETED

2.08 - MEAN NO. OF UNITS NEEDED

83% NEEDING PREREQUISITE UNITS

15% - UNIT 1 - WHOLE NUMBERS

23% - UNIT 2 - FRACTIONS

26.9% - UNIT 3 - DECIMALS

67.9% - UNIT 4 - RATIO

74.4% - UNIT 5 - PERCENTS

The specific units needed in fundamental math (basic or developmental math) are whole numbers, fractions, decimals, ratios and percents. For those students needing three or more units, I suggest that they drop business mathematics and enroll in our developmental math course and then come into business mathematics when they are ready. For the students who need only one or two units, an arrangement has been made with the developmental math lab which allows these students to make up their deficiencies and continue in the course. The 17% prerequisite attrition reflects only those students who actually dropped business math and enrolled in basic mathematics.

Utilization of our developmental math program is only one factor to help assure that instructional effectiveness will far outweigh instructional costs, and my collegue, Dr. Mary Lyons, will further state a case for instructional effectiveness over instructional costs in her developmental studies program at Tarrant County College.

THE BASIC STUDIES PROGRAM, TARRANT COUNTY JUNIOR COLLEGE

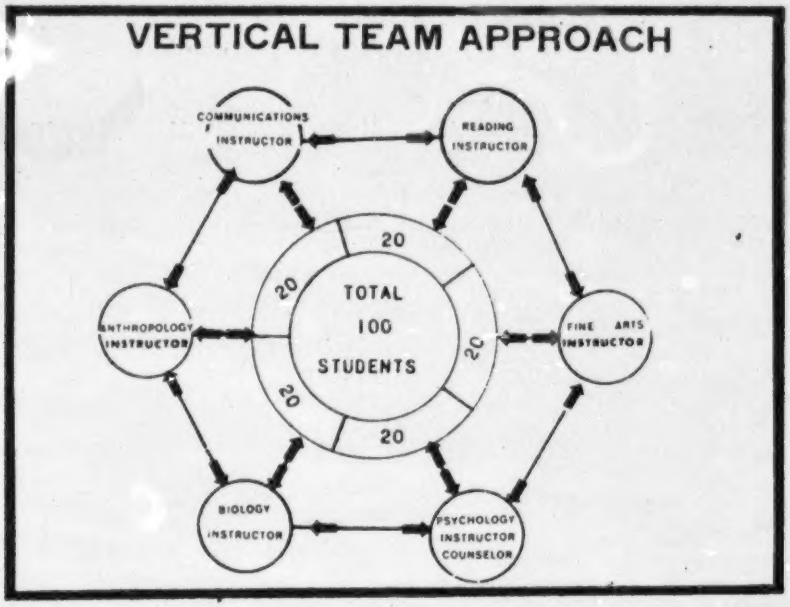
The Basic Studies program of the South Campus of Tarrant County Junior College, Fort Worth, Texas, is philosophically the result of the recognition that traditional instruction at a university parallel level has failed to provide success for the new-style students of community-junior colleges. Remedial measures for these students have also been unable to decrease their failure rates. A study by Schenz in 1963 found that at that time as many as seventy-five percent of low-achieving students withdrew from college the first semester. Dr. Charles L. McKenney, president of TCJC, envisioned a better way, and together with Dr. Timothy Davies, he built the Basic Studies program in 1967. Dr. McKinney and Dr. Joe Rushing, the chancellor, were successful in funding the program through the state coordinating board, course by course, by equating each to a standard college course, so that the program is funded by state and county funds equal to other courses at the college. It has operated at a cost considered "average--not the cheapest, but also not the most expensive," according to C. A. Roberson, vice-chancellor and chief financial officer of the college.

Basic Studies is a one-year, college level program in general education, designed specifically for the high-risk student who enters college in the lower quartile of entry scores. The cut-off at which counseling is indicated for a Tarrant County student is 13 or below on the American College Test composite. The program is voluntary for students, so those who enter it do so after counseling and only if they choose to enter. No student is required or forced into the program. The table below shows the additional criteria for admission.

CRITERIA FOR ADMISSION TO BASIC STUDIES

1. Composite score on ACT Test of 13.0 or below
2. Composite predictor score on ACT below 25th percentile
3. Minimal academic success in high school
4. Undecided on major or future academic program
5. Full-time student

The program operates with a team approach in a block-type scheduling. The instructional team is composed of five instructors and one counselor, each of whom teaches a different subject. The student's schedule is blocked out and predetermined for him in one of a group of five sections per team. There are approximately twenty students per section; thus, the team is responsible for the educational experiences of approximately one hundred students. There are two teams on the south campus at this time. The diagram below shows the concept of the team and the program with the students as the central focus.



The curriculum of the program consists of the six major areas of study shown in the next table. These courses represent 18 hours per semester. There is integration of planning among the instructors of the team around general themes and concepts whenever this is appropriate. Students take physical education outside the program, but all other courses they have are taught by Basic Studies instructors on a full-time assignment. The program also is a separate department in the General Studies Division.

Further descriptions of the program may be found in Roueche and Kirk's 1973 book Catching Up: Remedial Education and in two of the yearly progress reports of the program which are available from ERIC. They are catalogued under the subject heading "Basic Skills" and also under both title headings: Basic Studies: A Description and Progress Report, September, 1970, and Success Breeds Success, 1971-1972 report. ERIC numbers are the following: ED 044 104 and ED 068 083. These reports were compiled by Dr. Charles N. Johnson, chairman of the General Studies Division, who will make a presentation on characteristics and evaluation of the program in Forum 30 on Wednesday, where you may gain a more detailed description of the Tarrant County Basic Studies program.

BASIC STUDIES CURRICULUM

Fall Semester

Course	Semester Hrs. Credit
Communications I	3
Reading Improvement	1
Biology I	4
Fine Arts I	3
Anthropology	3
Psychology	3
Physical Education	1
	18

Spring Semester

Course	Semester Hrs. Credit
Communications II	3
Reading Improvement	1
Biology II	4
Fine Arts II	3
Social Problems	3
Career Planning	3
Physical Education	1
	18

What are some of the costs involved for a program for educationally disadvantaged students? Two of the most pertinent factors are (1) tax dollars spent to support the program and (2) tax dollars spent for alternative measures when college programs are not available to meet the needs of the young people. The students who populate the Basic Studies program are those whom Patricia Cross calls the "New Student." They are young adults who might be on welfare or who might even drift into aimless behaviors leading to detention. Young people in these situations are unlikely to become contributors to the community. Bill Gray, of the Vocational Rehabilitation Commission said it quite pragmatically: "The producer-earner puts it back into the community. The locked-up keeps it out. The unemployed, untrained is often a thief and he costs the community in lost property and vandalism. It isn't easily measurable, but we know it's costing."

These human costs are those which are seldom considered in computing costs of educational programs, but they are indeed much higher than the costs of special programs like ours. Let me show you a few examples of the high costs in Texas for caring for young people who have no other way to turn for their drives and energies.

The table below indicates the number of young adults on public welfare for the last two years. The figures show that only about two of every ten were able to come off welfare in 1971-72 and about three of every fifteen were rehabilitated the next year. That is approximately twenty percent rehabilitation for both years.

CLIENTS SERVED BY TEXAS STATE DEPARTMENT OF PUBLIC WELFARE

	SERVED	REHABILITATED
1971 – 72	10,564	2,254
1972 – 73	15,852	3,489

This table shows a one-in-four ratio of rehabilitation for young people held in detention for those two years. Thus only twenty-five percent were able to "drop out" of detention, while seventy-five percent were "stay-ins" at a high cost which I will show you next.

CLIENTS SERVED IN JUVENILE CORRECTIONS

	SERVED	REHABILITATED
1971 – 72	4,044	1,011
1972 – 73	6,340	1,492

Texas operates nine schools for dependent, neglected and/or delinquent children and young adults. To illustrate the costs of operating these schools, I selected four of these at random. The table below lists yearly costs for one student. Brownwood is the highest, at $9,861. It is possible in our state for a student to live in the dormitory at the University of Texas for four years and obtain a bachelor's degree for no more money that this. Yet, as we saw, seventy-five percent of the students of any year fail to "drop out" of such facilities. What it boils down to is this: how do we want to spend public funds and serve these people? I'll show you later that improved, cost-effective programs for the high-risk student are nowhere near the cost of either detention or welfare.

SUMMARY OF OPERATING EXPENSE OF SELECTED DETENTION FACILITIES OF THE TEXAS YOUTH COUNCIL F/Y 1972

FACILITY	AVERAGE RESIDENTS	NET COST PER RESIDENT
Gatesville State School for Boys	1,308	$ 4,210.01
Brownwood State Home For Girls	119	9,861.20
Gainesville State School For Girls	202	7,126.16
Mountain View School	393	$ 4,321.77

Let us return to the costs for a young adult enrolled in TCJC. What does he cost the taxpayer? This table is a breakdown of the cost per contact hour for an enrolled student. The total is $1.69 per hour.

COST PER CONTACT HOUR 1972 – 73

General Administration	.10
Student Services	.18
General Institutional	.06
Staff Benefits	.07
Learning Resources	.15
Instruction	.88
Operation of Physical Plant and Security	.25
	$ 1.69

The formula in the table is the average cost for any program in our district. The Basic Studies program is not funded as a special program, as I previously noted. It is on the formula in this table that we are funded, and from which Mr. Roberson concluded that our program is not more expensive than it warrants.

Using the contact hour figure, a student enrolled for 15 hours per semester, or 30 semester hours for the year, would make approximately 600 contact hours at a total cost of $1,014. For his 30 hours he would pay $120 at $4 per semester hour, leaving a cost of $894 to be met from state and local revenues. The table below illustrates these figures and costs. If you will remember, the cost for one young adult at Brownwood was $9,861. Eleven students at TCJC could be funded for that amount of tax dollars.

COST PER STUDENT FOR 9 MONTHS

1 Contact hour	$ 1.69
600 Contact Hours (30 semesters hours)	1,014.00
Student Paid Tuition	— 120.00
Cost Per Student Via Taxation	$ 894.00

The forum title indicates that we are concerned with improving instruction while maintaining cost effectiveness. Students who drop out of college the first semester represent loss, not rehabilitation, as in the case of welfare or detention. Therefore, attrition is an important factor in evaluating instruction. TCJC was dissatisfied with national attrition rates that lost so many students. Retention became the goal of Basic Studies, which had been created to meet the problem. A method was derived very early to obtain data on the persistence after the program for students who entered Basic Studies and for those who were eligible for it but refused it. In each of the yearly reports of the program, the data have been strongly indicative of the success of the program in achieving the goal of low attrition.

This next table is representative of the reports each year which compare returning students after one semester. The control

group is composed of students who were eligible for the program by both entry scores and characteristics, but who refused it and entered other programs. The table shows that eighty-five percent of the Basic Studies students who entered in the fall of 1972 returned for spring semester, 1973. Only sixty-two percent of the control group returned. That represents a thirty-eight percent attrition rate for them. Attrition alone, or even retention, for that matter, is not the only concern.

STUDENTS RETURNING
FOR SPRING SEMESTER, 1973

	NUMBER	PERCENT
Basic Studies	185	85
Control Group (Students eligible but not entering Basic Studies, 1972 – 73)	46	62

The effectiveness of the Basic Studies program for the high risk student may be seen in this next table. Control group students making a C average or better averaged only twenty-two semester hours for the year, or eleven per semester, while the students in Basic Studies averaged thirty-three semester hours for the year, with eighty-one percent making a C average or better.

STUDENTS QUALIFIED FOR BAS BUT NOT IN PROGRAM
1972-73 ACADEMIC YEAR

GPA	PERCENT	AVG. SEM. HRS. COMPL.
2.0 - 4.0	63%	
Below 2.0	37%	22 hrs.

BASIC STUDIES STUDENTS
1972-73 ACADEMIC YEAR

GPA	PERCENT	AVG. SEM. HRS. COMPL.
2.0 - 4.0	81%	
Below 2.0	19%	33 hrs.

Attrition during the first semester of college, as cited from the Schenz study, was as high as seventy-five percent in 1963. Last year, however, as the next table shows, students dropped out of Basic Studies during the semester in very small numbers. Persistence to the end of even one semester in college for such students breeds success expectations they have usually not previously had.

ATTRITION - BASIC STUDIES, 1972-73

	FALL SEMESTER	SPRING SEMESTER
Team 1	Total Students - 99	96
	Attrition - 2 (2%)	2 (2%)
Team 2	Total Students - 87	90
	Attrition - 2 (2%)	4 (4%)

The Basic Studies program is both instructionally and cost effective, as revealed by the traditional methods of evaluation; namely, re-admittance and grade point averages. The program is of average cost, and the students who enter it meet practical success and return to the community as producers, not liabilities. The important factor is humanistically obligated to be student success. A program such as the Tarrant County Basic Studies program turns high-risk students into satisfied customers who return for more education. Since the credits are transferrable, some have gone on to four year institutions and have earned bachelor's degrees. They might have joined that high percentage who dropped out, or they might have remained on the streets of Fort Worth on drugs or on welfare. Instead, they are in a fully credited college program that takes them as they are and that uses their strengths rather than their weaknesses as the basis for the instruction. Cost effective? I leave it to you.

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SUMMARY REMARKS

Dr. James O. Hammons

Thank you, Mary, and thank you, Sharon.

Our speakers have presented two very different ways of looking at effectiveness and efficiency in instruction. Sharon focused on what might be called true cost effectiveness and showed the relationship between relative costs and effectiveness of different learning strategies.

Although Mary also focused on cost effectiveness, her real concern was for what is called cost benefit - - the relationship between the "good" derived when resources are allocated for one objective, in this case, her basic studies program, versus the "good" achieved when those same resources are used for another purpose, in this case, public welfare, detention homes, etc.

As indicated by Sharon and Mary, there are several ways of measuring effectiveness.

Attrition

Grade distribution

Student success in later courses

Affective indicators, like student opinions

However, the most common measure of effectiveness is the degree to which instructional objectives are attained by learners at the end of an instructional process. Given two processes to accomplish the same objectives, it is assumed that one is more effective than the other if more students accomplish more objectives with one instructional process than another.

The question is, how do you get faculty to experiment with various alternatives?

Experimentation means change, and change in education is not the easiest thing to bring about.

In the past three years, I have had the opportunity to work as a change agent with faculty in some 30 odd colleges.

Most recently, I've been involved in a project containing over 300 faculty in eight different institutions, some two-year, some four-year. In some of these colleges, there has been significant change; in others, very little change has occurred. Yet, faculty reaction in all the institutions to the training they received has been uniformly very good. Why the differences in achievement? I don't know all the answers, but

I'd like to share with you my observations as to the reasons why changes toward instructional and cost effectiveness occurred in some schools and not others.

1. Administrative support -- not just in word, but action. Things like secretarial support, media production, duplicating services.

2. Faculty perception that administrators were in favor of change.

3. Acceptance, as a ground rule, that there is no "one way" to innovate.

4. Reinforcement of faculty efforts to improve. (Released time, funded summer fellowships, travel, promotion.)

And finally, administrators were not penny-wise to the point of being pound foolish. They realized, as did the administration at Burlington and Tarrant County that the long range pay offs far outweigh the small initial outlays required to cause change in the only criterion that counts - student learning.

FORUM EVALUATION

Dr. James O. Hammons

In a radical departure from established procedure, a Forum evaluation form was passed out and collated at the conclusion of the question and answer period following the Forum. As the summarized results which follow show, the evaluations were quite positive. Not reflected in the results, but of equal importance was the attendance and holding power of the Forum. At the beginning of the session, the room was filled (250) with several persons standing around the periphery. At the end of the Forum, the room was packed, with virtually every seat taken and almost no standing room left.

Evaluation Results - the instrument designed to evaluate the Forum was only one page and consisted of eight opinion statements and one open ended question. Directions to attendees were that they respond to the eight statements using the following scale.

NA Not Applicable
1 Strongly Disagree
2 Disagree
3 Slightly Disagree
4 Slightly Agree
5 Agree
6 Strongly Disagree

Space was provided under each statement for them to write in any comments or suggestions.

Of the estimated 300+ persons who attended the Forum, 80 completed the questionnaire. The low rate of response is explained by the timing of the distribution of the form and the fact that the Forum ran overtime and conferees were rushed to get to the next sessions.

FORUM EVALUATION

Mean	NA	1 strongly disagree	2 disagree	3 slightly disagree	4 slightly agree	5 agree	6 strongly agree
5.01	1	0	1	3	11	43	21
	1. The content of the Forum was consistent with the title of the Forum.						
5.04	2	0	2	0	13	41	22
	2. The introduction made clear to me the purposes of the Forum.						
5.29	0	0	1	1	4	42	32
	3. The Forum was well-organized.						
5.06	0	0	1	4	7	45	23
	4. The type of media used was appropriate for the content of the presentations.						
4.96	0	0	2	4	18	27	29
	5. I feel my time was well-spent in attending this Forum.						
5.64	0	0	0	1	2	22	55
	6. Forum presenters were well-prepared.						
5.18	1	0	1	1	9	40	28
	7. An appropriate amount of media was used.						
5.13	1	0	0	1	10	46	22
	8. The format used was appropriate.						

5.16 Overall Mean

Question nine merely stated "Other Comments." A complete list of responses obtained under this item follows:

Extremely worthwhile--best Forum yet!

Tarrant County cost data were sometimes based on ideals rather than reality

Would like to have script of the presentations

Cost well illustrated and documented--effectiveness not so well done

Slides too hard on second series to read

Very good presentation

Proof of effectiveness not given by either speaker. Grades received and retention percentages are not accurate measures of effectiveness. Cynicism is the best defense against repeating the follies of 1960-61-62

Good program [several comments like this]

Some printed notes to cover slides so that audience would not need to take notes

Well done!

Would have liked more precise information on difference between basic studies and regular liberal arts program

Mrs. Jaggard's presentation was excellent

A good first step to a difficult program concept

Start on time

Media preparation was excellent

We should begin identifying and analyzing the factors which cause cost to vary when educational effectiveness is held constant

Dr. Lyon's presentation tended to be obscured by chart after chart of statistics. Histograms might have done a better job--I expected more on instructional innovation. Mrs. Jaggard's presentation inspired me to ask (as a trustee) that our innovative teachers--who are doing great things--come up with comparative cost data

My time was well spent, both presenters have valid comments and both were using dollars very well

I was looking for a more theoretical session, i.e. Bercham's formula, that dealt with the variables involved in ascertaining cost--effectiveness

Excellent presentation. I enjoyed it very much and derived considerable benefit from it

Too much statistics in the second lecture

Conclusion remarks were not necessary--nor were the "guess-ti-mates"

A good program. Still I wonder if one can (or should) ever attempt to show cost--effectiveness by the method of Mary Lyons. You could lose-- and I believe these programs must be undertaken--in sheer human terms

Expected more information on methods of cost effectiveness, i.e. Forum gave only two examples

Not enough time for questions and answers. Too long comments by moderator

Excellent presentation

I was disappointed at not having time to copy references presented on the slides

Literature--hand outs needed

Rostrum obstructed some of slides

Best I have attended so far

Questionable as to what was included in determining costs

TCJC slides ill-prepared (too dark; print too small)

Needed a couple of jokes

Thank you - well done

UNIVERSITY OF CALIF.
LOS ANGELES

AUG 16 1974

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION